Amendments to the Drawings

The Drawings were objected to because the plane 2-2 in Figure 2 refers back to itself. A replacement sheet including Figures 1 and 2 has been attached to this response, in which the objected matter has been corrected. The numbers 2-2 in Figure 2 have been removed, as the lines merely indicate the symmetry and axis of rotation of the system rather than referring to another figure.

The Drawings were objected to for including a reference character (100) not mentioned in the description. The Applicant respectfully traverses the objection. The Application as originally filed disclosed reference character 100 at least in claim 1: "1. Mechanical and electrical connection system between the ends of two approximately coaxial shafts (1 and 2) that move along an overall axial direction (100) and are capable of transmitting approximately axial forces..." By this response, paragraph [0013] of the application has been amended to recite, in part, "The invention consists of a mechanical and electrical connection system between the ends of two approximately coaxial shafts that move along an overall axial direction (100) and are capable of transmitting approximately axial forces," rendering the objection moot.

The Drawings were objected to as not showing every feature of the invention specified in the claims, specifically an extension rod supporting a chisel, a convex surface of revolution about the axis of the driving shaft, and the end of the driven shaft contacting the end of the driving shaft. By this response, Figs. 3 and 4 have been added.

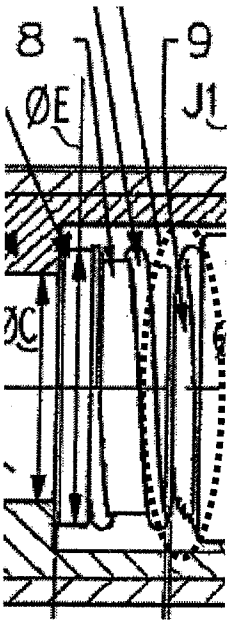
Fig. 3 illustrates a system that includes an axial translation device (located to the left of the coupling) and a chisel (located to the right of the coupling). The addition of Fig. 3 is supported at least by Fig. 1 and paragraphs [0013] and [0050] of the application. Fig. 3 is based on Fig. 1 and modified to show features disclosed in paragraphs [0013] and [0050]. In particular, paragraph [0013] states, in part, "[t]he invention consists of a mechanical and electrical connection system between the ends of two approximately coaxial shafts that move along an overall axial direction and are capable of transmitting approximately axial forces, one of the shafts called the "driving shaft" being connected to an axial translation device, typically a

jack..." Paragraph [0050] states, in part, that "[i]n fact, the driving shaft 1 is the rod of the pneumatic jack and the driven shaft 2 is the extension rod that supports the chisel."

Fig. 4 illustrates a system in which the end of the driven shaft contacts the end of the driving shaft. The addition of Fig. 4 is supported at least by Fig. 1 and paragraph [0014] of the application. Fig. 4 is based on Fig. 1 and modified to show features disclosed in paragraph [0014]. In particular, paragraph [0014] states, in part, a "driving shaft that will come into contact with the end of the driven shaft..."

Contrary to the contention in the Office Action, Fig. 1 does indeed show the feature of a convex surface of revolution about the axis of the driving shaft. The outer surface of projection 9, located within the dotted oval in a fragment of Fig. 1 below, provides a convex outer surface, as described in paragraph [0026] of the application: "this type of transverse wall may have a convex surface of revolution about the axis of the driven shaft, with a greater curvature at its mid-point than the curvature of the transverse wall of the projection of the driving shaft." The curvature of the end of the projection has the smallest curvature of the driving shaft, thus the driving shaft has a convex surface of revolution about the axis of the driving shaft.

All of the Drawing Objections are respectfully submitted to be traversed and requested to be withdrawn.



REMARKS/ARGUMENTS

Claims 14-28 are pending in the application. Claims 1-13 were previously cancelled. Claims 14-28 stand rejected. By this response, claims 14 and 16-23 have been amended. Paragraphs [0013] and [0034] of the specification, and Fig. 2 have also been amended. Figs. 3 and 4 have been added and a brief description of Figs. 3 and 4 has been added to the specification. No new matter has been introduced into the application. As explained in more detail below, Applicants submit that all claims are in condition for allowance and respectfully request such action.

Claim Objections

Claims 14, 16-19, 27 and 28 were objected to due to informalities regarding reference characters not enclosed within parentheses. The Applicant disagrees, but to expedite prosecution of the application, the claims have been amended to specify the heights, etc, numerically and to place the following characters in parentheses: H1, H2, H0, C, H3, ØG, H4, J1, J2 and J4. For example, amended claim 19 now recites the following:

> 19. The system according to claim 14, wherein the difference between the axial height of the cavity and the sum of the first and second axial heights (H1) and (H2) corresponds to a second maximum clearance (J2) between the shaft ends, and the difference between the third axial height (H3) of the annular groove of the driven shaft and the fifth axial height (H4) of the second annular shoulder of the coupling corresponds to a third maximum clearance (J4) strictly greater than the second maximum clearance (J2) between the shaft ends.

Claims 14, 17, 20, and 22 were objected to due to informalities. By this response, claim 14 has been amended to include the term "ends" after "axial" in lines 11, 14 and 17. Claim 17 has been amended to insert the phrase "the fourth axial height" after "than" in line 6 and "ØG" after the second occurrence of "diameter" in line 7. Claim 20 has been amended to delete the word "occupies," to insert the phrase "with each other" after the first occurrence of "contact," and to insert the phrase "of the driven shaft" after the first occurrence of "projection" in line 6. Claim 22 has been amended to insert the word "respectively" before "between" in line 2 and to insert

the phrase "of the shafts" after "projection" in line 2. All objections having been traversed, the Applicant respectfully requests withdrawal of all the objections.

Claim Rejections – 35 USC § 112

Claims 14-28 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The rejection contends that it is unclear, in claim 14, whether the "driven shaft" and the "driving shaft" are the same coaxial shafts that are recited in the preamble. Claim 14 has been amended to clarify that the driven shaft and the driving shaft are indeed the same coaxial shafts. Claim 14 has been amended to recite, in part, "A mechanical and electrical connection system comprising a driving shaft connected to an axial translation device and having an end comprising an annular groove proximate to an axial end extension, the axial end extension having a first axial height (H1); a driven shaft approximately coaxial with the driving shaft,." This amendment is supported at least by paragraph [0013] of the specification and no new matter has been added. Accordingly, the preamble does not include two shafts and the only shafts recited in amended claim 14 are the driving shaft and the driven shaft, which is specified to be approximately coaxial with the driving shaft.

The rejection further contended that the recitation "an axial end extension of axial height H1" in claim 14 makes it unclear from what part is the axial end extension from. As shown above, claim 14 has been amended to specify "an end comprising an annular groove proximate to an axial end extension, the axial end extension having a first axial height (H1)." Similarly, claim 14 has been amended to specify "an axial end extension, the axial end extension of having a second axial height (H2)." The amendments are supported at least by Fig. 1, paragraph [0039] and paragraph [0041] of the application.

The rejection further contended that the recitation of "a second annular shoulder with a surface complementary to the shape of the annular groove proximate to the axial extension of the driven shaft" in claim 14 is misdescriptive and/or inaccurate. Claim 14 has been amended to instead recite "a second annular shoulder with a surface having a shape that fits into the annular

groove proximate to the axial end extension of the driven shaft." The amendment is supported at least by Fig. 1 and paragraph [0042] of the application.

Claim 14 has also been amended to replace the term "elastic" before "conducting means," which was previously rejected as lacking function and unclear. The Applicant respectfully disagrees and traverses the rejection. The phrase "elastic conducting means" is defined by the disclosure of the application. For instance, paragraph [0021] of the specification states that "the corresponding end axial extensions of the driving shaft and the driven shaft remain in permanent mechanical and electrical contact due to an elastic conducting means, typically a metallic helical spring." Further, paragraph [0027] of the application states that "[t]he base and the projection are arranged such that the elastic conducting means can bear on each of the shafts, such that there is a continuous electrical contact between the two shafts." Clearly, the word, "elastic" is an adjective that modifies the term "conducting means" in order to allow the conducting means to maintain continuous electrical contact between two movable elements. Although there is more than one common definition of elastic, the overall context and the example of a metallic helical spring illustrate that "elastic" refers to a flexible or resilient conducting material (as opposed to a rubber material). Consequently, the meaning of the phrase "elastic conducting means" is clear and functional.

The rejection further contended that the recitation of "a complementary shape to the coupling" in claim 17 makes it unclear what shape that is. Claim 17 has been amended to delete the phrase "a complementary shape to the coupling."

The rejection further contended that the recitation "a transverse wall that occupies a convex surface" in claim 20 makes it unclear to what the transverse wall is transverse to and how one knows when a transverse wall occupies a convex surface. Claim 20 has been amended to recite a "wall" instead of a "transverse wall that occupies a convex surface."

The rejection further contended that the recitation of a transverse wall with "a profile such that when the two shafts are put into contact, the area of contact between the projection of the driven shaft and the projection of the driving shaft is located as close as possible to the axis of the driving shaft" in claim 20 makes it unclear what shape the profile is. Claim 20 has been

amended to recite "a wall, wherein, when the two shafts are put into contact with each other, the area of contact between the projection of the driven shaft and the projection of the driving shaft is located as close as possible to the axis of the driving shaft." The amendment is supported at least by paragraph [0041] of the application.

The rejection further contended that the recitation "the driven shaft comprises a projection" in claim 21 makes it unclear whether this is another projection than that recited in claim 20 or the same projection. Claim 21 has been amended to recite the phrase, "wherein the wall of the projection of the axial end extension of the driven shaft" to clarify what projection is recited. The amendment is supported at least by Fig. 1 of the application. Claim 21 has also been amended to delete the phrase "projection having an end with a transverse wall that occupies a convex surface of revolution about the axis of the driven shaft."

The rejection further contended that the recitation "the curvature of the transverse wall" in claim 21 lacks proper antecedent basis. Claim 21 has been amended to now recite, in part, "a curvature of the wall."

The rejection further contended that the recitation "an annular groove and an axial end extension adjacent one another" in claim 23 makes it unclear whether this is another annular groove and another axial end extension than that recited in claim 14. Claim 23 has been amended to delete the phrase "an annular groove and an axial end extension adjacent one another."

The rejection further contended that the recitation "the cylindrical base" in claim 23 lacks proper antecedent basis. Claim 23 has been amended to now recite, in part, "a cylindrical base."

The rejection further contended that the recitation "a transverse wall being formed" in claim 23 makes it unclear where the transverse wall is being formed. Claim 23 has been amended to delete the phrase "a transverse wall."

The rejection further contended that the recitations "the axial end extension" and "the annular groove" in claim 23 make it unclear whether that is the one from the driving shaft or the driven shaft. Claim 23 has been amended to now recite, in part, "wherein the axial end extension

of the driving shaft comprises" and "wherein the axial end extension of the driven shaft comprises." Further, claim 23 has been amended to include the reference letters in parentheses after the annular groove to indicate either the diameter of the annular groove from the driving shaft (C) or the diameter of the annular groove from the driven shaft (ØG). The amendments are supported at least by Fig. 1 of the application as filed.

The rejection further contended that the metes and bounds of claim 28 are unclear for not further limiting the mechanical-and-electrical connection system. The Applicant respectfully disagrees. Claim 28 limits the driving shaft from being any driving shaft of a mechanical and electrical system to instead specifically being a rod of a pneumatic jack. Likewise, claim 28 limits the driven shaft from being any driven shaft of a mechanical and electrical system to instead specifically being an extension rod supporting a chisel.

The rejection further contends that Claims 15-26 are indefinite for depending from claim 14. The indefiniteness rejections of independent claim 14 have been overcome, thus, claims 15-26, like amended claim 14, are not indefinite. All of the indefiniteness rejections having been addressed, the Applicant respectfully requests withdrawal of the 35 USC § 112 rejections.

Claim Rejections – 35 USC § 102

Claims 14, 15, 22, 23 and 27 were rejected under 35 USC § 102 as being anticipated by US Application Publication No. 2002/0013085 to Boyle et al. ("Boyle"). The Conclusion of the Office Action mailed September 26, 2008 stated that "the deleted limitations "connected to an axial translation device" in claim 14, line 4, and "elastic" in claim 14, line 21, and the added limitation "approximately coaxial with the driving shaft" in claim 14, line 6, necessitated the new grounds of rejection." By this response, claim 14 has been amended to insert the features "connected to an axial translation device" and "elastic" back into independent claim 14.

The rejection contends that Boyle discloses a driving shaft (element 11 of Boyle) and a driven shaft (element 12 of Boyle). However, Boyle is silent regarding at least the feature of amended independent claim 14 of "the axial end extension of the driving shaft and the axial end extension of the driven shaft remaining in mechanical and electrical contact due to an elastic

conducting means." In contrast to claim 14, Boyle discloses that "[t]he bias surface 12c of the center probe rod distal end abuts ball 15 at one end of a coil spring 14 between ball 15 and center probe contact 11." (Paragraph [0023] of Boyle) Fig. 1 of Boyle is provided below for convenience, and an arrow has been added pointing to ball 15, which is located between the coil spring 14 and the center probe 12. Consequently, even if elements 11 and 12 could be considered a driving shaft and a driven shaft, respectively, Boyle does not teach the feature of the axial end extension of the driving shaft and the axial end extension of the driven shaft remaining in mechanical and electrical contact ***due to an elastic conducting means***. Consequently, Boyle does not teach each and every limitation of amended claim 14 and cannot be considered to anticipate claim 14. Claims 15, 22, 23 and 27 depend from claim 14 and are not anticipated by Boyle for at least the same reasons as amended claim 14 and for the additional features recited therein. The 35 USC § 102 rejection is respectfully requested to be withdrawn.

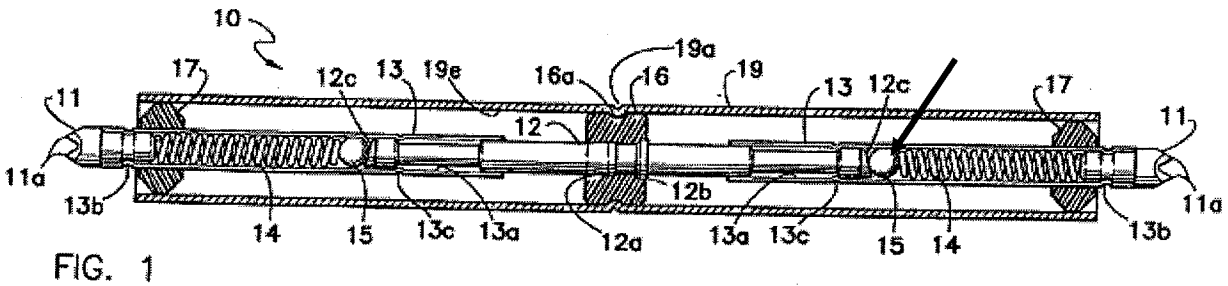


FIG. 1

Claim Rejections – 35 USC § 103

Claims 16 and 17 were rejected under 35 USC § 103(a) as being unpatentable over US Application Publication No. 2002/0013085 to Boyle in view of US Patent No. 4,783,897 to Basnett ("Basnett"). Claims 18-21 were rejected under 35 USC § 103(a) as being unpatentable over US Application Publication No. 2002/0013085 to Boyle. Claims 16-21 depend from independent claim 14. As noted above, the Conclusion of the Office Action mailed September 26, 2008 stated that "the deleted limitations "connected to an axial translation device" in claim 14, line 4, and "elastic" in claim 14, line 21, and the added limitation "approximately coaxial with the driving shaft" in claim 14, line 6, necessitated the new grounds of rejection." By this

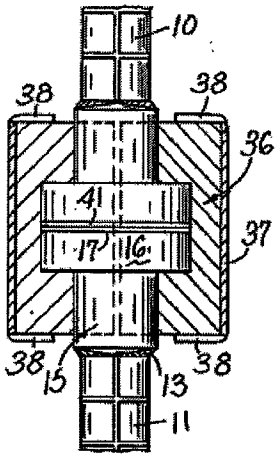
response, claim 14 has been amended to insert the features "connected to an axial translation device" and "elastic" back into independent claim 14.

Boyle is discussed above and is silent regarding at least the feature of claim 14 of "the axial end extension of the driving shaft and the axial end extension of the driven shaft remaining in mechanical and electrical contact due to an elastic conducting means." Basnett does not remedy the deficiencies of Boyle with respect to claim 14. Basnett is relied upon to disclose the shape of the annular groove and the shoulder to retain the shafts to the coupling, and Basnett is completely silent regarding mechanical and electrical contact of shafts due to an elastic conducting means. Accordingly, claims 16-17 are patentable over Boyle in view of Basnett and claims 18-21 are patentable over Boyle for at least the same reasons as amended claim 14 and for the additional features recited therein.

Claims 14 and 24-26 were rejected under 35 USC § 103(a) as being unpatentable over US Patent No. 5,261,449 to Smetters ("Smetters") in view of US Patent No. 4,024,688 to Calini ("Calini"). The Office Action acknowledges that Smetters is silent regarding "the axial end extension of the driving shaft and the axial end extension of the driven shaft remaining in mechanical and electrical contact due to an elastic conducting means."

Calini is relied on to disclose a conducting means 41, which is illustrated in Fig. 5 of Calini below. Calini discloses, "[a]s shown in FIG. 5, because of manufacturing tolerances, the head portions 16 of the members 12 may be made slightly undersized, then shims 41 of gauge dimensions may be placed therebetween as the rebars are joined for extension thereof." (Col. 3, lines 44-48 of Calini) Calini discloses shims to place between the members 12, but there is no teaching or suggestion by Calini to provide an elastic conducting means, as required by amended claim 14. Accordingly, claim 14 is patentable over the proposed combination of Smetters and Calini. Claims 24-26 depend from claim 14 and are patentable over Smetters in view of Calini for at least the same reasons as amended claim 14 and for the additional features recited therein.

Fig. 5



CONCLUSION

All rejections having been addressed, applicant respectfully submits that the instant application is in condition for allowance, and respectfully solicits prompt notification of the same. Should the Examiner have any questions, the Examiner is invited to contact the undersigned at the number set forth below.

Applicant believes there is no fee due in association with the filing of this response, however, should there be any fees due the Commissioner is hereby authorized to charge any such fees or credit any overpayment of fees to Deposit Account No. 19-0733.

Respectfully submitted,

BANNER & WITCOFF, LTD.

Dated: December 12, 2008

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